

ABSTRACT

The present invention relates to the field of battery and capacitor charging. In particular, the present invention provides pulsed current charging using changes, regardless of polarity, in the local energy environment to obtain power. The present invention relates, for example, to ambient energy charging thin film batteries, other batteries, or capacitors, via, for example, polyvinylidene fluoride homopolymer (PVDF), PVDF bi-axially poled, or other piezoelectric materials. Ambient energy may be defined as any change in energy within the local environment. Charging can be accomplished with, and is not limited to, positive or negative changes of the following energy types: thermal; visible light, including infrared and ultraviolet; mechanical motion or impact; triboelectric, including airflow or physical contact; movement in relation to a gravitational plane (increase or decrease in gravitational potential energy); and radio frequency (RF) electromagnetic energy, regardless of specific frequency.